



# United States Department of the Interior

## BUREAU OF LAND MANAGEMENT SALT LAKE DISTRICT OFFICE

2370 South 2300 West  
Salt Lake City, Utah 84119

IN REPLY REFER TO:

3500  
(U-027)

OCT 25 1991

Dianne R. Nielson, Geologist  
Director, Utah Div. of Oil, Gas, and Mining  
355 West North Temple  
3 Triad Center, Suite 350  
Salt Lake City, Utah 84106

Dear Ms. Nielson:

The next Bonneville Salt Flats Technical Review Committee meeting is on **November 5, 1991, at 1:00 p.m. in the Salt Lake District** conference room. Considerable time has elapsed since the last TRC meeting and much has transpired with a number of agenda items needing your input listed below.

### Agenda

1. USGS update on the Salt Flats Study.
2. Summary of recent activities concerning the Salt Flats.
3. Review and discussion of the NHRA/Reilly salt replacement feasibility study.
4. Please review the enclosed proposal to evaluate the potash resource on military lands south of Reilly's facility and provide recommendations during the meeting.

If you have any questions, please contact Jordon Pope or Steve Brooks at 977-4300.

Sincerely,

Deane H. Zeller  
District Manager

RECEIVED

OCT 28 1991

DIVISION OF  
OIL GAS & MINING

**EVALUATION OF THE MINERAL POTENTIAL  
OF  
CERTAIN LANDS CONTROLLED BY THE U.S. AIR FORCE  
IN  
TOOELE COUNTY, UTAH**

**OBJECTIVE**

The objective of the study is to acquire data that is of sufficient quality and quantity so that a valuable deposit of potash can be delineated, if it exists, and a fair market value for this deposit can be determined. Should it be determined that the loss of salt from the Salt Flats is being caused by development of leased federal minerals, we want to consider the exchange of unleased federal mineral for these mineral leases as one possible solution.

**ACTIVITIES PROPOSED**

It is proposed that this study be conducted in three discrete phases. The first phase will be a review and compilation of existing data on the study area. The second phase will consist of drilling shallow bore holes and collecting brine samples from these holes. If the first and second phases produce data which define an area of economic mineralization, then the third phase will be conducted. In this phase, three sets of monitor wells will be constructed in the shallow brine aquifer and pump tests will be conducted to determine the hydrologic characteristics of the shallow aquifer. This data will be used to estimate the potential yield of brine from the area. It is not proposed to study the moderately deep alluvial fan aquifer at this time because of the costs involved in the construction of moderately deep wells.

**Phase 1:**

The lands involved have been studied previously. Most recently, data was collected by the U.S.G.S. as part of an exchange proposal. This study was done in the late 1970's. This is called the Salduro Study. In this phase, this data will be digitized and loaded on computer so that it can be manipulated using a computer. The variance of the data will be determined so that the appropriate sampling program for phase 2 can be designed. Data format will be compatible with that used by Brooks in the salt loss study conducted in 1988. The computer software and hardware needed is available at the Utah State Office.

**Phase 2:**

In phase two, data will be collected to supplement the data that has already been gathered. A two person crew will auger a hole to about 20 feet in depth. A 6 inch diameter screw auger mounted on a snow cat or an air-trac drill will be used. A small battery powered pump will be used to pump brine from the bottom of the hole. A sample from each hole will be collected. Access will be made by four wheel all terrain vehicles and/or a snow cat. One crew can collect 5 to 8 samples per day. Holes will be cased with PVC and a brine sample will be collected. The casings will be capped for future use if needed.

Well control will be obtained by drilling on section corners if surveyed. If the area is unsurveyed, then an additional two person crew will precede the drilling crew. This crew will locate drill sites from a surveyed corner using a transit and an electronic distance meter. This crew will use all terrain vehicles for access. It is estimated that 100 samples will be taken during phase two.

Data collected in phase two will also be loaded in a computer. The data from phase one and phase two will be combined and used to delineate any areas where economic deposits of potash occur in the study area. If no areas are identified, then the study will end at this point. If an area of an economic deposit is identified, then the study will proceed to phase three.

### **Phase 3:**

In phase three, the hydrologic characteristics of the economic deposits will be measured. It is not possible at this time to identify specifically where these measurements will be taken because the siting of the tests depends on the results of phase 2. It is estimated that three sets of monitor wells will be sufficient to identify the hydraulic characteristics. Each monitoring set will consist of five wells. The first well will be the pumping or active well. The other four wells will be constructed in the cardinal directions from the active well and will be observation wells. All wells will be cased with PVC or similar material. The bottom ten feet of the casings will be perforated. The wells will be pumped for one hour after construction and then allowed to rest for at least one week. At the end of the week, the static water level in each well will be measured. The active well will then be pumped for twenty four hours. If no effect is noted in the monitor wells in the first 24 hours, then the test will continue for up to 72 hours. The volume of water pumped from the active well and the water levels in the observation wells will be carefully measured throughout the testing period. Allowing time for setting up and for cleaning up, continuous occupancy of the surface at the location of the test may be required for an entire week. The data collected during the test will be analyzed using standard hydrologic methods. The results will be used to estimate the yield of brine which could be expected from the deposit.

## **EQUIPMENT**

### **Phase 1:**

None

### **Phase 2:**

- 4 All Terrain Vehicles
- 1 Electronic Distance Meter
- 1 Transit
- 1 Air-Trac Drill with 20 Feet of Steel or 1 Power Auger and a Snow Cat
- 1 Thirty Foot Long Hose
- 1 Battery Powered Drill
- 1 Drill Pump
- 100 Sample Bottles
- 2,000 Feet of 3" Diameter PVC
- 100 3" Diameter PVC Caps

**Phase 3:**

300 Feet of 4 inch PVC Casing with Couplers and Caps  
1 Well Work-Over Rig Mounted on Pickup Truck (Richfield District has one)  
1 Gasoline Powered, High Volume Pump with Thirty Feet of Suction Hose (borrowed from fire?)  
2 Pickup Trucks for Support  
1 Well Probe (resistivity)  
1 Portable Weir  
1 Stop Watch  
2 Tents for Weather Protection

**COST**

**Phase 1:**

1 Work Month	\$ 3,650
<b>Total</b>	<b>\$ 3,650</b>

**Phase 2:**

5 Work Months	\$18,250
Vehicle Use	\$ 500
Air-Trac Rental	\$ 4,000
Sample Analysis	\$ 5,000
Supplies	\$ 1,000
Per Diem	\$ 6,400
PVC	<u>\$ 4,000</u>
<b>Total</b>	<b>\$39,150</b>

**Phase 3:**

8 Work Months	\$29,200
Vehicle Use	\$ 1,000
Supplies	\$ 5,000
Per Diem	<u>\$ 5,000</u>
<b>Total</b>	<b>\$40,200</b>
<b>Total Project Cost</b>	<b>\$83,000</b>